

## REMARKS/ARGUMENTS

Applicant responds herein to the Office Action dated July 31, 2003. A Petition for Extension of Time and the fee therefor are enclosed.

As requested, the applicant has properly identified Figures 9-12, by appending thereto the legend "PRIOR ART".

The specification has been reviewed and amendments have been entered to improve the readability thereof and the idiomatic usage of English.

Further, the title of the invention has been amended to one that is believed to be more descriptive of the claimed invention. However, the applicant would be pleased to accept any other title suggested by the Examiner.

Similarly, the Abstract has been amended, commensurate with the Examiner's request at paragraph 6 of the Office Action.

In addition, Figure 5 has been amended to correct a typographical error therein. Reconsideration and withdrawal of all of the objections to the specification, drawings and to the Abstract is earnestly solicited.

Substantively, claim 1 stands rejected on grounds of obviousness over Wakabayashi (5,570,149), in view of Numako (4,962,399); claims 2 and 11 stand rejected on grounds of obviousness over Wakabayashi, in view of Numako, further in view of Yasuda (6,285,154); claims 3, 5, 6 and 15 stand rejected on grounds of obviousness over Wakabayashi, in view of Numako, further in view of Roustaei (5,756,981); and claims 4, 12, 16 and 17 stand rejected on grounds of obviousness over Wakabayashi, in view of Numako, further in view of Roustaei and Yasuda. Reconsideration is requested in view of the amendments to the claims herein and the following remarks.

The specification, in its introductory pages, acknowledges the prior art's awareness of and utilization of cameras that stow the various lens frames in the camera body, to achieve compactness during non-use.

The instant specification also acknowledges the disclosure in Japanese patent no. 2702474 (see page 3 of the specification), which is designed to change the driving speed at which the zoom lens is driven between the zoom interval and any other interval. The specification also acknowledges the prior art's awareness of driving these lens at a high speed and a low speed.

Nonetheless, the invention discloses novel subject matter in the manner in which the lens frames are driven to obtain all the benefits with only a minimum of the disadvantages. For example,

as described at page 6 of the instant specification, conventionally, the lens frame or the driving end is provided with an encoder for detecting the positions of the lens frames. This adds bulk and size to the camera, but is necessary in order to avoid the possible problem of an unexpected or unintended force being unintentionally applied to the lens barrel frame holding the lens frames, as described in the paragraph bridging pages 5 and 6 of the instant specification.

Indeed, the instant specification goes on to acknowledge, beginning at the bottom paragraph on page 6 thereof, that the utilization of a stepping motor for driving lens frame is also described in the prior art.

Thus, as described and considered in the instant specification, individual elements of the invention may be known in certain context. Nonetheless, there are certain drawbacks to the utilization of a stepping motor as the driving source without giving up certain desirable features. Thus, "...it is difficult to design a barrel driving structure, which uses a stepping motor as a driving source, without an encoder." (specification: page 12, lines 7-9)

Accordingly, each of the independent claims in the application recites the inclusion of a stepping motor with a lens unit or camera that lacks an encoder for detecting the positions of the lens frames. However, by judicious selection of components and by selecting a particular driving control mode for the stepping motor, the instant inventors have been able to overcome all the drawbacks of the prior art, while retaining the various advantages sought for the overall apparatus, including substantial savings in the usage of power which ensues in part from consuming considerably less current in the second driving mode, as compared to the first driving mode, during which the thrusting action for moving the plurality of lens frames rapidly from the storage position to the ready-to-image position is executed.

Respectfully, in citing Wakabayashi, the Examiner has not interjected into the application a reference that discloses more than is already described in the introductory pages review of the prior art.

Indeed, while the Examiner states that Wakabayashi does not specifically disclose a control means for controlling the optical system and, furthermore, Wakabayashi is silent with regard to the amount of current used to operate a drive motor to expand and retract the lens barrel, the Office Action should have also acknowledged that Wakabayashi nowhere refers to the utilization of a stepping motor.

As noted above, the utilization of a stepping motor is one of the key features of the present invention.

The Examiner has further relied on Numako for the proposition that it discloses a zoom lens driving apparatus similar to the system described in Wakabayashi. Here again, Numako does not add to the prior art more than is already disclosed in the introductory pages of the instant specification, which review the prior art.

If at all, the applicant respectfully traverses the conclusion in the Office Action that it is inherent that the rotation speed of a motor is controlled by the amount of current applied. At least theoretically, the current is not the only parameter that could be utilized to control speed.

Similar remarks are applicable to the citation of Yasuda (in combination with Wakabayashi and Numako). This reference does not add anything beyond what is already discussed in the review of the prior art in the instant specification. None of these documents discloses the utilization of a stepping motor without an encoder and with the controlling of the current as described and claimed in the instant claims.

Since all of the claims in the application rely on the primary reference Wakabayashi, and that reference does not disclose a stepping motor, as claimed in claim 1, particularly one that is operable without the use of an encoder, it is respectfully submitted that all of the claims which have been rejected on prior art are clearly not anticipated and certainly not rendered obvious by the prior art of record, including by the addition of the teachings from the tertiary reference, Roustaei (6,285,154).

Since the Examiner has indicated that claims 13 and 14 are directed to patentable subject matter, the same have been rendered in independent form.

Accordingly, the Examiner is respectfully requested to reconsider the application, allow claims 1-6 and 11-17 as amended and pass this case to issue.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on February 2, 2004:

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February 2, 2004  
Date of Signature

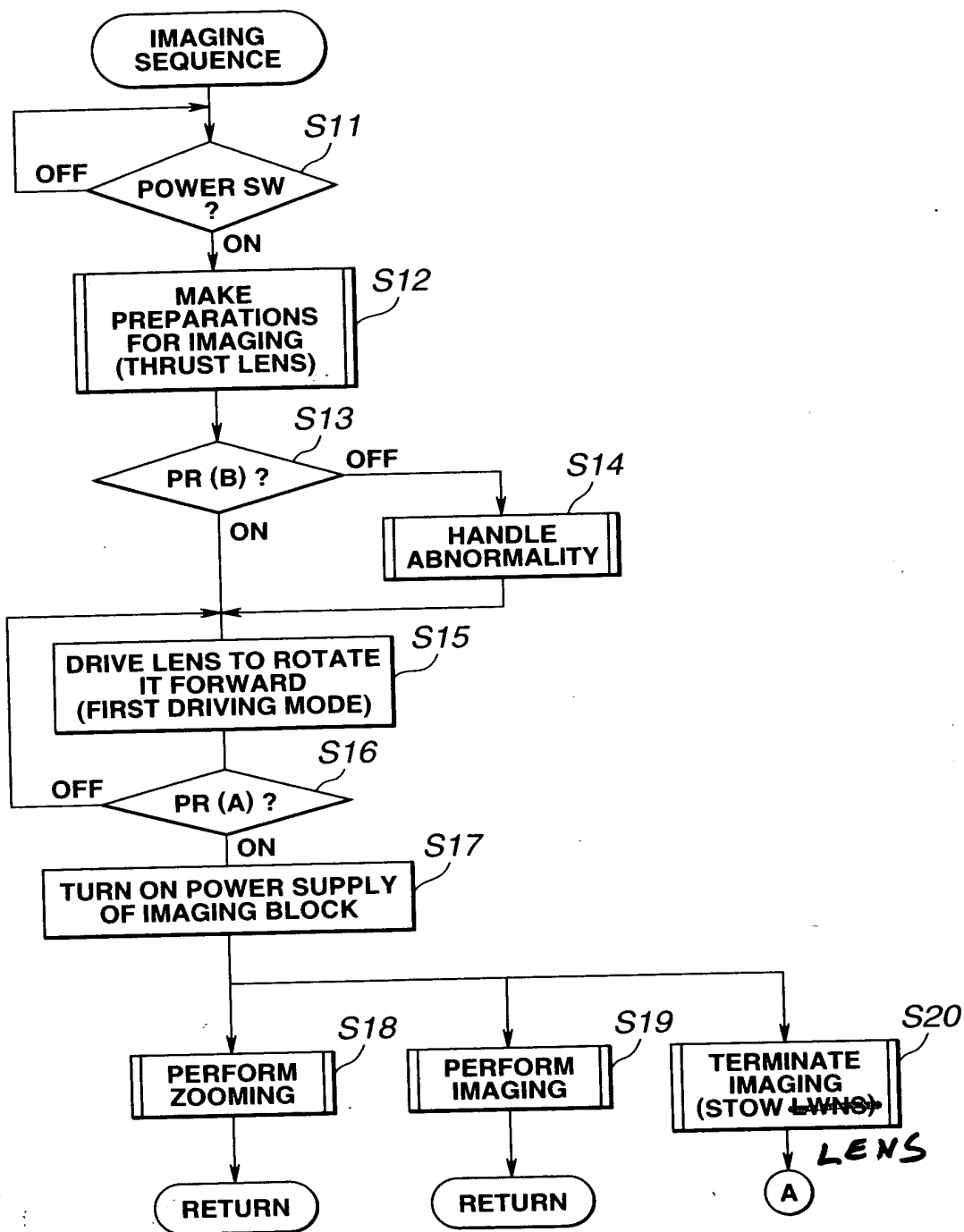
Respectfully submitted,

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Part 2  
9/A

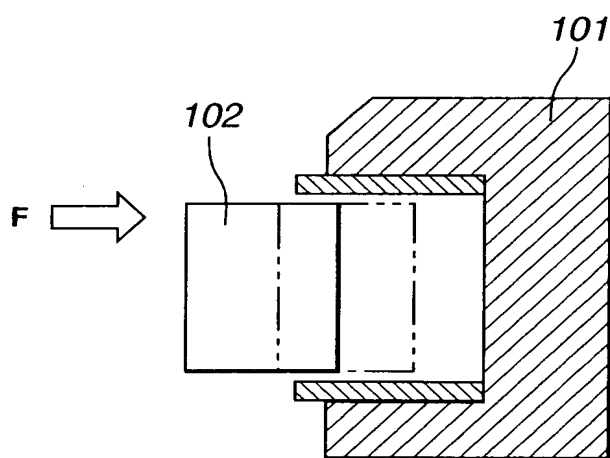
FIG.5





PRIOR ART

**FIG.9**





PRIOR ART

FIG.10

	1	2	3	4	1	2	3	4	1	2	3
A PHASE	S	O	N	O							
$\bar{A}$ PHASE	N	O	S	O							
B PHASE	O	S	O	N							
$\bar{B}$ PHASE	O	N	O	S							

PRIOR ART

FIG.11

	1	2	3	4	1	2	3	4	1	2	3
A PHASE	N	S	S	N							
$\bar{A}$ PHASE	S	N	N	S							
B PHASE	N	N	S	S							
$\bar{B}$ PHASE	S	S	N	N							

PRIOR ART

FIG.12

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A PHASE	N	N	O	S	S	S	O	N								
$\bar{A}$ PHASE	S	S	O	N	N	N	O	S								
B PHASE	O	N	N	N	O	S	S	S								
$\bar{B}$ PHASE	O	S	S	S	O	N	N	N								